

SWBAT: calculate electrical power

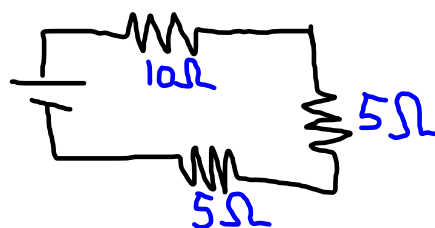
Jan 4-7:20 AM

# Welcome!!!

H. Leslie Grebe

SECA Physics  
Monday 9 March 2015

- \* Pick up:
- slip of paper (for later)
- yellow concept sheet



Opening Questions:

Is this a series or parallel circuit? How much total resistance would you guess there is?

$$\text{SERIES: } R_T = 10\Omega + 5\Omega + 5\Omega \\ = 20\Omega$$

Centering

Sep 7-7:04 AM



## Mystery Resistor - extra credit

- You may work alone or with at most one other person of your choosing.
- Get a "Mystery Resistor" labeled with a letter from Leslie
- Use the same equipment that our teams used in class. Take measurements that will allow you to calculate the resistance (in Ohms) of your resistor.
- You may work when there is spare time in class or arrange other time with Leslie.

Due by 3:00 Friday 3/27

Jan 19-7:12 AM

Concept sheet: 6 rows total

Concept	Meaning	Symbol	Units	Analogy
CHARGE	PROPERTY OF PROTONS & ELECTRONS THAT CAUSES ATTRACTION & REPULSION	$q$	COULOMBS $C$	
VOLTAGE =ELECTRIC POTENTIAL	POTENTIAL BASED ON POSITION IN AN ELECTRIC FIELD "PUSH"	$V$	VOLTS $V$ $V = \frac{J}{C}$	-PERSON -PEDALING $\Rightarrow$ THE PUSH
CURRENT	THE FLOW OF ELECTRIC CHARGE $= \frac{CHARGE}{TIME}$	$I$ $I = \frac{q}{t}$	AMPERE $A$ $1A = \frac{1C}{s}$	-WHEEL -CHAINS MOVING
RESISTANCE	OPPOSITION OF CURRENT "AGAINST THE FLOW"	$R$	OHMS $\Omega$	BRAKES
OHM'S LAW	VOLTAGE = CURRENT TIMES RESISTANCE	$V = I \cdot R$	$V$ $= I \cdot \Omega$	HOW HARD YOU PEDAL? BRAKE AFFECTS SPEED
POWER	AMOUNT OF WORK IN A CERTAIN TIME $= CURRENT \times VOLTAGE$	$P = I \cdot V$	WATTS $W$	

Feb 23-7:34 AM

## Power in Appliances!

$$\text{Power} = \underline{I} \cdot V = \text{CURRENT} \times \text{VOLTAGE}$$

↳ MEASURED IN WATTS

What's a kW? KILOWATTS = 1000 WATTS

- \* Can work with one other person.
- \* Get one appliance all the way done for sure  
Try to get 2 done!
- \* Can do more on the back for extra credit.
- \* Help each other understand. Ask if still confused.

FLIP  
SIGN

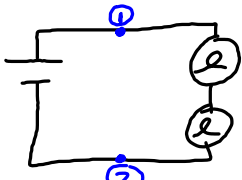
Mar 21-7:21 AM

## What did you find?

SPEAKERS	5 W	8 ¢
HAIR DRYER	1500 W	\$25.20
MIXER	100 W	\$1.68
RAZOR	5.4 W	9 ¢
IRON	250 W	\$4.20
TOASTER	800 W	\$13.24

Mar 9-8:33 AM

Circuit Puzzles: Predict, explain, observe

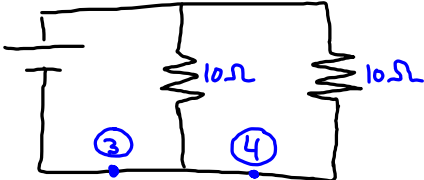


—|— = BATTERY  
 — $\square$ — = RESISTOR  
 — $\square$ — = SWITCH  
 — $\bigcirc$ — = LIGHT BULB

WILL THE CURRENT BE THE SAME AT ① & ②?

Observation: 0.45 A on both spots

Explanation: One path, one wire, all electrons flowing same speed



WILL THE CURRENT BE THE SAME AT ③ & ④?

Observation: 1.80 A at (3) and 0.90 A at (4)

Explanation: All moving electrons need to use the wires closest to the battery. But the electrons don't need to go through both resistors! So some through each path.

Mar 23-7:45 AM

### Daily 3 Questions

- \* Every day except test/project days
- \* 3 Questions on the topics of the day
- \* Main source of daily points
- \* I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

CP homework - Find a major appliance at your house and complete table

You can't get your points if you don't have your NAME!!!

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. Power = current x VOLTAGE

2) What are the units for measuring power?

WATTS (W)

3) Which costs more to run for a week: a dryer or speakers?

Feb 18-6:59 AM